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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/980,016	04/08/2002	Rogier Eijkelhof	99.1091	2969

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EXAMINER

BARBEE, MANUEL L

ART UNIT PAPER NUMBER

2857

DATE MAILED: 11/19/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/980,016

Applicant(s)

EIJKELHOF, ROGIER

Examiner

Manuel L. Barbee

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 08 April 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,2,4,5,9 and 10 is/are rejected.
- 7) ☒ Claim(s) 3 and 6-8 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 6.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## **DETAILED ACTION**

### ***Specification***

1. The disclosure is objected to because of the following informalities:

The specification should be amended to include appropriate section headings. See MPEP 608.01(a).

The brief description of the drawings should include a brief description of Figure 7.

Appropriate correction is required.

2. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

### ***Claim Objections***

3. Claim 1 is objected to because of the following informalities: In claim 1, line 7 of the claim, after "interpolation", insert --and--. Appropriate correction is required.


### ***Claim Rejections - 35 USC § 112***

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claims 5 and 9 rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 5 and 9 call for assigning heavier weighting using "a Gaussian distribution, at least an exponential distribution." It is unclear whether a Gaussian distribution or an exponential distribution is intended in these claims.



***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 1, 2, 4 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Utagawa (US Patent No. 6,563,538) in view of Miyake (US Patent No. 5,917,963).

With regard to interpolation in a region of source values, as shown in claim 1, Utagawa teaches an interpolation device that interpolates the value of a point within a grid of known points (Abstract). With regard to measuring the dynamics of a local region of source values and using weighted interpolation to adjust the value of the target value, as shown in claim 1, and a weighting factor dependent on average local dynamics, as shown in claim 10, Utagawa teaches using grid points to calculate correlation and a weighting factor used to calculate an interpolation amount (col. 3, line 15 - col. 4, line 33). Utagawa does not teach determining a minimum and maximum value for the region or adjusting in the direction of the minimum or maximum, as shown in claim 1, or that the target value is determined on the basis of interpolation relative to the local maximum and minimum, as shown in claim 10.

Miyake teaches detecting a minimum and a maximum value in a window of values and using the minimum and maximum value to calculate the

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interpolation point (col. 5, line 25 - col. 6, line 15; col. 11, line 59 - col. 12, line 44). It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the interpolation device, as taught by Utagawa, to include determining a minimum and a maximum value, as taught by Miyake, because then interpolation calculations would have considered the entire range of pixel values in the region used to interpolate the unknown point, and interpolation calculations would not have been limited to the nearest neighbor calculation (Miyake, col. 1, lines 10-31).

With regard to determining the dynamics as a normalized weighted value of the absolute differences in source values in the local region, as shown in claim 2, and making the direction of the adjustment dependent on the relative difference between target values, as shown in claim 4, Utagawa teaches calculating correlation amounts using the sum of the differences of the pixel outputs of the grid points (col. 21, lines 46-53). Miyake teaches determining the minimum and maximum value, as shown above with regard to claim 1.

7. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Utagawa in view of Miyake as applied to claim 1 above, and further in view of Wallis et al. (IEEE Transactions on Medical Imaging, 1997, Vol. 16).

Utagawa and Miyake teach all the limitations of claim 1 upon which claim 5 depends. Utagawa and Miyake do not teach the use of interpolation based on Gaussian distribution, as shown in claim 5. Wallis et al. teach a reconstruction algorithm for an image that uses Gaussian interpolation (Abstract). It would have been obvious to one of ordinary skill in the art at the time the invention was made

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to modify the interpolation device combination, as taught by Utagawa and Miyake, to include Gaussian interpolation, as taught by Wallis et al., because then there would have been superior preservation of global and local image counts, accurate count positioning and uniform and predictable amount of blurring (Wallis et al., Abstract).

***Allowable Subject Matter***

8. Claims 3 and 6-8 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

***Conclusion***

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Pieters et al. (US Patent No. 3,743,772) teach image analyzing.

Goto (US Patent No. 5,920,660) teaches a tomogram interpolation method.

Cho et al. (US Patent No. 6,018,601) teach an interpolation method for binary images.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Manuel L. Barbee whose telephone number is 703-308-0979. The examiner can normally be reached on Monday-Friday from 8-4:30.

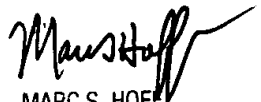
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Marc S. Hoff can be reached on 703-308-1677. The fax

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phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-305-0976.

mlb

  
MARC S. HOFF  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 2800